EXHIBIT A

TIMELINE

Time	Action	Data Source
1602:00	Last M56 fed to the DFS kiln.	Plant Mgr Timeline
2010:00	Began activities to support ECR entry to perform a water wash of DFS-GATE-102. The CRO lowered the kiln pressure from –0.5" to –1.5" WC. The previous shift had placed chute spray TIC-154 in manual with a CV of 40%.	EG&G chronology
1958:34 to 2014:12	Operator stepped PIC-018 set point from –0.45" to –1.50" WC in several small increments in a controlled fashion. During this time, there were several alarms indicating increased flow through the system and PIC-018 was operating in automatic. During this time, the kiln pressure low alarm was received and acknowledged in the CON.	PDARS alarm printer capture.
2015:59	16-PDIT-813 AFB exhaust gas differential pressure high-high alarm activated.	PDARS alarm printer capture.
2017:00	Entrants enter ECR A.	Plant Mgr Timeline
2022:00	Entrants enter ECR B.	Plant Mgr Timeline
2026:53 to 2048:14	The DFS CRO gradually lowered TIC-154 CV from 40% to 23%.	PDARS alarm printer capture.
	DPE entrants removed the protective shroud from above the DFS slide gate and egressed from ECR B.	Logs
2030:02	The DFS CRO opened the DFS slide gate (MMS-GATE-104).	PDARS alarm printer capture.
2034:54	The DFS CRO opened the DFS tipping valve (DFS-GATE-102) and cleared the kiln pressure low alarm.	PDARS alarm printer capture.
2035:18	The CON received an alarm off of 24-PDIT-003. This indicated high flow through the scrubber tower packed bed. The alarm was acknowledged by the CON at 2035:38 hours.	PDARS alarm printer capture.
	Entrants attempted to use the water lance, but it failed. The entrants egressed from ECR B.	Logs
2037:46	The DFS CRO closed the DFS tipping valve (DFS-GATE-102) and received the kiln pressure low alarm.	PDARS alarm printer capture.
2038:32	The DFS CRO opened the DFS tipping valve (DFS-GATE-102) and cleared the kiln pressure low alarm.	PDARS alarm printer capture.
2038:00	ECR entrants attempted to use a water lance to clean debris from DFS-GATE-102.	EG&G chronology
2042:00	The CRO detected pressure oscillations in the DFS/DFS PAS system.	EG&G chronology
2042:00	The DFS CRO placed PIC-018 in manual.	PDARS alarm printer capture.

EXHIBIT A
TIMELINE

Time	Action	Data Source
2042:56	The DFS CRO closed the DFS tipping valve (DFS-GATE-102) and received the kiln pressure low alarm.	PDARS alarm printer capture.
2043:21	The DFS CRO placed PIC-018 in automatic.	PDARS alarm printer capture.
2042:00 to 2048:00	The CRO attempted to stabilize the system pressure and noted that the PIC-018 CV was fluctuating from approximately 30% CV to 90% CV.	EG&G chronology
2048:28	The DFS CRO placed PIC-018 in manual.	PDARS alarm printer capture.
2049:14	16-TIC-182 kiln exhaust temperature low-low cleared.	PDARS alarm printer capture.
2053.00	Kiln skin temperature at the feed end increased from 960 (downscale) to 1175°F.	EG&G chronology
2053:06 to 2054:05	DFS CRO opened shroud air dampers HY-16 to 11% and HY-17 to 15%.	PDARS alarm printer capture.
2054:00	Entrants returned to B airlock.	Plant Mgr Timeline
2054:49 to 2202:21	16-FI-813 DFS AFB exhaust flow high alarm cleared and reactivated repeatedly – indicating flow perturbations through the AFB.	PDARS alarm printer capture.
2056:00 to 2058:00	The CRO made manual attempts to try to stabilize the system flow and pressure. The CRO was concerned about the ID fan current being too close to the high trip set point.	EG&G chronology
2056 20	The DFS CRO changed PIC-018 CV from 91% to 90%.	PDARS alarm printer capture.
2057:00	Entrants entered ECR B.	Plant MgrTimeline
2058:03	The DFS CRO changed PIC-018 CV from 92% to 91%.	PDARS alarm printer capture.
2058:31	The DFS CRO changed PIC-018 CV from 90% to 89%.	PDARS alarm printer capture.
2101:58	The DFS CRO opened the DFS tipping valve (DFS-GATE-102) and cleared the kiln pressure low alarm.	PDARS alarm printer capture.
2101.00 to 2109:00	ECR entrants attempted to use a water lance to clean debris from DFS-GATE-102.	EG&G chronology
2102:05	Kiln low pressure alarm cleared.	PDARS alarm printer capture.

EXHIBIT A
TIMELINE

Time	Action	Data Source
2104:25	HDC low temperature alarm activated.	PDARS alarm printer capture.
2105:36	The DFS CRO closed the DFS tipping valve (DFS-GATE-102) and received the kiln low pressure alarm.	PDARS alarm printer capture.
2108:10	The DFS CRO opened the DFS tipping valve (DFS-GATE-102) and cleared the kiln low pressure alarm.	PDARS alarm printer capture.
2109:13	The DFS CRO closed the DFS tipping valve (DFS-GATE-102) and received the kiln low pressure alarm.	PDARS alarm printer capture.
2113:00	Entrants returned to B airlock.	Plant Mgr Timeline
2115:00	The CRO made manual attempts to try to stabilize the system flow and pressure. The CRO is concerned about the ID fan current being too close to the high trip set point.	EG&G chronology
2115:06	The DFS CRO changed PIC-018 CV from 89% to 88%.	PDARS alarm printer capture.
2116:44	The DFS CRO lowered TIC-154 CV from 23% to 15%.	PDARS alarm printer capture.
2117:00	CRO placed TIC-154 in automatic with a set point of 240°F.	EG&G chronology. PDARS alarm printer capture.
2119:00	Entrants enter ECR B.	Plant Mgr Timeline
2123:48	The DFS CRO changed PIC-018 CV from 87% to 86%.	PDARS alarm printer capture.
2124:35	The DFS CRO changed PIC-018 CV from 86% to 85%.	PDARS alarm printer capture.
2123:00 to 2124:00	The CRO made manual attempts to try to stabilize the system flow and pressure. The CRO is concerned about the ID fan current being too close to the high trip set point.	EG&G chronology
2125:41	The DFS CRO opened the DFS tipping valve (DFS-GATE-102) and cleared the kiln low pressure alarm.	PDARS alarm printer capture.
2126:33	The CON received a venturi scrubber high differential pressure (24-PDIC-008) alarm indicating excessive flow.	PDARS alarm printer capture.
2128:07	The CON acknowledged the venturi scrubber high differential pressure (24-PDIC-008) alarm.	PDARS alarm printer capture.
2125:00 to 2129:00	ECR entrants attempted to use a water lance to clean debris from DFS-GATE-102.	EG&G chronology

Time	Action	Data Source
	From 2125 to 2129 hours, approximately 100 gallons of process water was introduced to the DFS feed chute. The kiln exhaust temperature (16-TY-182) decreased from 1022°F to 857°F due to the water being introduced and the cool room area being drawn in through the open feed gates. From 2034 to 2129 hours the burner temperature (16-TIC-020) increased from 1434°F to 1514°F in an attempt to maintain kiln exhaust temperature. The AFB temperature controller was also responding and increasing the burner firing rate to recover temperature to the set point.	Analog data captured by the control system
2129:35	The DFS CRO closed the DFS tipping valve (DFS-GATE-102).	PDARS alarm printer capture.
2124:35	The DFS CRO changed PIC-018 CV from 88% to 50%.	PDARS alarm printer capture.
2130:38	The DFS CRO closed the DFS slide gate (MMS-GATE-104).	PDARS alarm printer capture.
	After the slide gate was closed, the DPE entrants changed out the AQS strainer sock, placed the used sock on top of the slide gate for processing and replaced the protective shroud over the gate. From 2034 to 2129 hours, the DFS CRO had to open and close the DFS tipping valve on five different occasions. The DFS system flows, pressures and temperatures were affected each time the valve was cycled. After the chute clean-out activities were complete, the system was trying to recover temperature by increasing the firing rate of the kiln and both afterburner burners. Overall system flow had increased due to the increased firing rate of the burners. The DFS CRO took actions to return the DFS system to normal so that he could process the spent AQS strainer sock.	Summary of plant status
2131:11	The DFS CRO placed PIC-018 in automatic and received the kiln pressure low alarm.	PDARS alarm printer capture.
2131:18	The DFS CRO changed PIC-018 set point from –1.50" to –1.00" WC.	PDARS alarm printer capture.
2132:32	The DFS CRO changed PIC-018 set point from –1.00" to –0.75" WC.	PDARS alarm printer capture.

EXHIBIT A
TIMELINE

Time	Action	Data Source
2133:58	The DFS CRO changed PIC-018 set point from –0.75" to –1.00" WC.	PDARS alarm printer capture.
2137:00	DPE entrants place about 1 lb. of strainer waste on the DFS Feed Gate.	Plant Mgr Timeline
2141:00	DPE entrants exit ECR B.	Plant Mgr Timeline
2141:14	The DFS CRO changed PIC-018 set point from –1.00" to –0.50" WC.	PDARS alarm printer capture.
2145:34	The DFS CRO placed the venturi scrubber PDIC-008 in manual.	PDARS alarm printer capture.
2146:10	The DFS CRO changed PDIC-008 CV from 95% to 85%.	PDARS alarm printer capture.
2147:48	The DFS CRO placed PIC-018 in manual.	PDARS alarm printer capture.
2148:00	The DFS CRO changed the PIC-018 CV from 14% to 16%.	PDARS alarm printer capture.
2148:22	The kiln low pressure alarm cleared.	PDARS alarm printer capture.
2148:45	The DFS CRO changed the PIC-018 CV from 16% to 18%.	PDARS alarm printer capture.
2148:48	The kiln low pressure alarm activated.	PDARS alarm printer capture.
2150:00	The DFS CRO changed PDIC-008 CV from 75% to 60%.	PDARS alarm printer capture.
2150:05	The DFS CRO changed PDIC-008 CV from 60% to 65%.	PDARS alarm printer capture.
2150:09	The kiln low pressure alarm cleared.	PDARS alarm printer capture.
2151:31	The DFS CRO changed the PIC-018 CV from 20% to 22%.	PDARS alarm printer capture.
2153:31	The kiln low pressure alarm activated.	PDARS alarm printer capture.
2153:53	AFB #1 excess air flow low alarm cleared.	PDARS alarm printer capture.
2154:19	The kiln low pressure alarm cleared.	PDARS alarm printer capture.
2154:52	The DFS CRO placed PIC-018 in auto.	PDARS alarm printer capture.

EXHIBIT A
TIMELINE

Time	Action	Data Source
2154:53	The DFS CRO placed PDIC-008 in automatic.	PDARS alarm printer capture.
2154:55	The kiln low pressure alarm activated.	PDARS alarm printer capture.
2154:19	The kiln low pressure alarm cleared.	PDARS alarm printer capture.
2155:23	The kiln low pressure alarm activated.	PDARS alarm printer capture.
2156:37	16-PDIT-813 AFB exhaust gas differential pressure high-high alarm cleared.	PDARS alarm printer capture.
2157:39	16-PDIT-813 AFB exhaust gas differential pressure high-high alarm activated.	PDARS alarm printer capture.
2158:09	16-TIT-020 kiln burner temperature high-high alarm cleared.	PDARS alarm printer capture.
2010:00 to 2158:00	During this time the kiln pressure was maintained consistently between -0.50" WC and -1.60" WC. The AFB pressure was maintained between -2.3" WC and -5.4" WC. System flow, pressure, and temperature responded to the opening and closing of the tipping valve and to the water wash-down of the DFS feed chute.	Analog Data from the Control System
2158:09	The DFS CRO placed PDIC-008 in manual.	PDARS alarm printer capture.
2158:18	The DFS CRO changed PDIC-008 CV from 86% to 95%.	PDARS alarm printer capture.
2158:32	The DFS CRO changed PDIC-008 CV from 95% to 100%.	PDARS alarm printer capture.
2145:00 to 2158:00	The kiln pressure and the AFB pressure responded to the manipulations of the venturi scrubber differential pressure controller (24-PDIC-008). The kiln pressure was controlled between -0.76" WC and -1.49" WC. The AFB pressure was maintained between -3.05" WC and -4.98" WC.	Analog Data from the Control System
2158:38	16-PIT-063 pressure low alarm activated.	PDARS alarm printer capture.
2158:59	The DFS CRO placed PIC-018 in manual.	PDARS alarm printer capture.
2159:07	24-LIC-031 packed bed level low alarm activated.	PDARS alarm printer capture.

EXHIBIT A
TIMELINE

Time	Action	Data Source
	Normal system processing requires make-up to the clean liquor reservoir in the scrubber tower. It is not unusual for LIC-031 to decrease to the level low alarm point.	Analog Data from the Control System
2130:00 to 2201:00	The CRO made manual attempts to try to stabilize the system flow and pressure. The CRO was concerned about the ID fan current being too close to the high trip set point.	EG&G chronology
2159:22	DFS CRO placed XV-026 packed bed water make-up valve in manual and opened it.	PDARS alarm printer capture.
	The DFS CRO responded normally to the 24-LIC-031 Packed Bed level low alarm.	
2159:59	24-XS-430 gas flow system meter malfunction alarm.	PDARS alarm printer capture.
	The data indicates that the abnormally high flue gas flow through the system caused some carry over of the make-up water that was being introduced to the packed bed. This carry over caused the gas flow system meter elements to become saturated with liquid. The gas flow system meter transmitter signaled a "trouble" alarm, but was able to function for another 22 seconds.	
2200:34	DFS CRO changed PIC-018 set point from –0.50" to –1.00" WC.	PDARS alarm printer capture.
2200:42	DFS CRO placed PIC-018 in automatic.	PDARS alarm printer capture.
2201:29	DFS CRO placed PIC-018 in manual.	PDARS alarm printer capture.
2201:57	24-LIC-031 Packed bed level low alarm cleared.	PDARS alarm printer capture.
2202:21	24-FSLL-430 Loss of draft alarm.	PDARS alarm printer capture
2202:23	24-FSL-430 Loss of purge flow alarm.	PDARS alarm printer capture
2202:00	24-FSLL-430 Gas flow system meter failed. causing a loss of system purge and a LOCKOUT of both afterburners and the kiln burner.	EG&G chronology

Time	Action	Data Source
	At the time of the gas flow system meter failure and the subsequent burner lockouts, the kiln pressure controller (16-PIC-018) was set to manual. The venturi scrubber differential pressure controller (24-PDIC-008) was operating in manual with a CV of about 100%. The pressures were already trending to a more negative pressure. When the lockout occurred both the AFB and kiln pressures almost immediately became more negative than the pressure instrumentation is calibrated to detect. By 2202:28 hours the kiln and AFB pressures were indicating –2.00" WC and –6.00" WC respectively.	Summary of plant status
2202:26	24-PDIC-008 Venturi scrubber differential pressure high alarm cleared.	PDARS alarm printer capture
2202:26	16-PSLL-029 AFB combustion air blower discharge pressure low-low alarm activated.	PDARS alarm printer capture
2202:35	Kiln burner LOCKOUT alarm activated.	PDARS alarm printer capture
2202:35	AFB #1 burner LOCKOUT alarm activated.	PDARS alarm printer capture
2202:38	AFB #2 burner LOCKOUT alarm activated.	PDARS alarm printer capture
2202:52	16-TIC-092 AFB temperature low alarm activated.	PDARS alarm printer capture
2202:57	16-TIC-092 AFB temperature low-low alarm activated.	PDARS alarm printer capture
	In response to a loss of system purge, the control system ramped open the combustion air flow control valves for the two afterburner burners and the kiln burner. The control system also ramped open the kiln shroud air dampers. When this happened, the kiln pressure returned to –0.93" WC and the AFB pressure returned to –2.02" WC by 2202:58 hours.	Summary of plant status
	The SCRO became involved with the DFS system upset. It was the belief in the CON that the kiln was free of hazardous material. The DFS CRO was being assisted by another CRO who had more experience operating the DFS under non-normal conditions. The SCRO made the decision to allow the DFS CRO, who was relatively inexperienced at operating the DFS under non-normal conditions, to continue to recover the DFS furnace back to normal, stable conditions. It was the consensus in the CON that this was the best time for on the job training.	

EXHIBIT A
TIMELINE

Time	Action	Data Source
2202:58	16-ZS-021A Kiln combustion air flow control valve opened to high fire to establish purge.	CONR-112 discrete I/O state change collected by PDARS
2203:11	16-ZS-078A Kiln combustion air flow control valve open to high fire to establish purge.	CONR-112 discrete I/O state change collected by PDARS
2203:00	DFS Afterburner pressure high alarm. The CRO took action to control pressure including placing both AFB combustion air flow control valves in manual and lowering the CV to 10%. The CRO also placed TIC-092 in manual and reduced the CV from 100% to 10%.	EG&G chronology
2203:19	16-PIT-065 AFB chamber pressure high alarm activated.	PDARS alarm printer capture
2203:22	16-PSHH-204 Kiln pressure high-high alarm activated.	PDARS alarm printer capture
2203:22	DFS CRO reset AFB #1 LOCKOUT.	CONR-112 discrete I/O state change collected by PDARS
2203:26	PIC-018 Kiln pressure high alarm activated.	PDARS alarm printer capture
2203:33	DFS CRO reset AFB #2 LOCKOUT.	CONR-112 discrete I/O state change collected by PDARS
2203:36	16-TIC-182 Kiln exhaust temperature low-low alarm activated.	PDARS alarm printer capture
2203:40	16-ZS-016A Kiln shroud air flow control valve opened to high fire to establish purge.	CONR-112 discrete I/O state change collected by PDARS
2203:44	The DFS CRO changed the PIC-018 CV from 2% to 20%.	PDARS alarm printer capture.
2203:52	16-ZS-017A Kiln shroud air flow control valve opened to high fire to establish purge.	CONR-112 discrete I/O state change collected by PDARS
2204:35	16-ZS-078A Kiln combustion air flow control valve no longer at high fire.	CONR-112 discrete I/O state change collected by PDARS
2204:42	The DFS CRO changed the FIC-191 (AFB #1 fuel gas) CV from 0% to 10%.	PDARS alarm printer capture.
2204:43	16-PIT-065 AFB chamber pressure high alarm cleared.	PDARS alarm printer capture.

EXHIBIT A
TIMELINE

Time	Action	Data Source
2204:51	The DFS CRO changed the FIC-079 (AFB #2 combustion air) CV from 100% to 10%.	PDARS alarm printer capture.
2204:53	The DFS CRO changed the FIC-066 (AFB # 2 fuel gas) CV from 0% to 10%.	PDARS alarm printer capture.
	At this point, the CRO had taken manual control of the combustion air flow control valves for all three burners and reduced the CV to 10%. This was done to prevent cooling down the AFB while the CON was troubleshooting the failure of the gas flow system meter. However, 24-PDIC-008 was still in manual with a CV of 100% and 16-PIC-018 was in manual with a CV of 20%. This configuration caused the kiln and AFB pressures to become excessively negative. The AFB pressure indicated –6.0" WC from 2205:28 until 2229:30 hours. The kiln pressure indicated between –1.46" WC and –2.00" WC during the same time frame. The kiln room pressure is normally maintained at –0.85" WC by the cascade ventilation system. During the time that the kiln pressure became very negative, the kiln room pressure dropped to about –1.43" WC. Also during this time, the ECR B ACAMS (ECR312) readings dropped from about 0.29 to 0.22 MPL. This data indicates that when the kiln pressure became excessively negative, agent was drawn into the kiln from ECR B.	Summary of plant status
2204:55	PIC-018 Kiln pressure high alarm cleared.	PDARS alarm printer capture.
2205:24	16-PIT-065 AFB chamber pressure low alarm activated.	PDARS alarm printer capture.
2205:31	PIC-018 Kiln pressure low alarm activated.	PDARS alarm printer capture.
2206:00	DFS AFB temperature low alarm sounded.	EG&G chronology
2206:10	16-TIC-092 DFS AFB temperature low alarm activated.	PDARS alarm printer capture.
2206:21	16-TIC-020 Kiln temperature low alarm activated.	PDARS alarm printer capture.
2206:28	16-TIC-008 Kiln exhaust temperature low-low alarm activated.	PDARS alarm printer capture.
2207:14	16-TIC-020 Kiln temperature low-low alarm activated.	PDARS alarm printer capture.

EXHIBIT A
TIMELINE

Time	Action	Data Source
	The DFS CRO was troubleshooting the gas flow system meter with the ultimate goal of trying to get at least one burner in the AFB lit to maintain AFB temperature. In an attempt to minimize any carry-over and optimize the drying of the gas flow system meter probes, the DFS CRO closed XV-026 and set the packed bed level controller (24-LIC-031) CV to 0% to stop all water being added to the packed bed.	
2207:50	DFS CRO placed 24-XV-026 in auto causing it to close.	PDARS alarm printer capture.
2207:58	DFS CRO placed 24-LIC-031 in manual.	PDARS alarm printer capture.
2208:00	DFR CRO changed LIC-031 CV from 100% to 0%.	PDARS alarm printer capture.
2209:47	24-FSL-430 Purge flow alarm cleared.	PDARS alarm printer capture.
2209:47	24-FSLL-430 Draft flow alarm cleared.	PDARS alarm printer capture.
2209:00	CRO identified the gas flow system meter failure and requested IT to investigate.	EG&G chronology
2210:00	CRO identified a rise in the demister sump water level.	EG&G chronology
2212:12	24-FSL-430 Purge flow alarm activated.	PDARS alarm printer capture.
2212:12	24-FSLL-430 Draft flow alarm activated.	PDARS alarm printer capture.
2212:17	24-FSL-430 Purge flow alarm cleared.	PDARS alarm printer capture.
2212:17	24-FSLL-430 Draft flow alarm cleared.	PDARS alarm printer capture.
2212:17	24-AAH-207 DFS PAS CO high alarm activated.	PDARS alarm printer capture.
	When all three burners locked out on the 24-FSLL-430, the CEMS, as expected, recorded a sudden increase in flue gas O_2 and CO. The 24-AAH-207 CO alarm is based on an average over time. Even though the alarm activated at 2212 hours, actual CO readings were returning back to normal levels.	Analog Data from the Control System
2212:31	24-FSLL-430 Draft flow alarm activated.	PDARS alarm printer capture.

EXHIBIT A
TIMELINE

Time	Action	Data Source
2212:33	24-FSL-430 Purge flow alarm activated.	PDARS alarm printer capture.
2218:48	16-XV-235 DFS chute temperature controller PRW block valve closed (closes when TIC-008 < 500°F).	CONR-112 discrete I/O state change collected by PDARS
2218:48	16-XV-236 DFS chute temperature controller PRW block valve closed (closes when TIC-008 < 500°F).	CONR-112 discrete I/O state change collected by PDARS
2218:52	16-XV-235 DFS chute temperature controller PRW block valve opened (opens when TIC-008 >= 500°F).	CONR-112 discrete I/O state change collected by PDARS
2218:52	16-XV-236 DFS chute temperature controller PRW block valve opened (opens when TIC-008 >= 500°F).	CONR-112 discrete I/O state change collected by PDARS
2218:53	16-XV-235 DFS chute temperature controller PRW block valve closed (closes when TIC-008 < 500°F).	CONR-112 discrete I/O state change collected by PDARS
2218:53	16-XV-236 DFS chute temperature controller PRW block valve closed (closes when TIC-008 < 500°F).	CONR-112 discrete I/O state change collected by PDARS
2219:33	The DFS CRO changed the FIC-078 (AFB #1 combustion air) CV from 10% to 5%.	PDARS alarm printer capture.
2219:39	The DFS CRO changed the FIC-079 (AFB #2 combustion air) CV from 10% to 5%.	PDARS alarm printer capture.
2221:11	CRO placed PDIC-008 in automatic.	PDARS alarm printer capture.
2224:12	16-XV-280 Atomizing air to kiln exhaust quench nozzle valve closed (closes when TIC-020 < 500°F).	CONR-112 discrete I/O state change collected by PDARS
2224:15	16-XV-280 Atomizing air to kiln exhaust quench nozzle valve opened (closes when TIC-020 >= 500°F).	CONR-112 discrete I/O state change collected by PDARS
2224:16	16-XV-280 Atomizing air to kiln exhaust quench nozzle valve closed (closes when TIC-020 < 500°F).	CONR-112 discrete I/O state change collected by PDARS
2224:17	The DFS CRO changed the PIC-018 CV from 20% to 22%.	PDARS alarm printer capture.
2225:00	IT technicians are troubleshooting the gas flow system meter.	EG&G chronology

EXHIBIT A
TIMELINE

Time	Action	Data Source
2225:00	CRO opened XV-026 to makeup water to the packed bed.	CONR-112 discrete I/O state change collected by PDARS
2225:18	The DFS CRO changed the FIC-079 (AFB #2 combustion air) CV from 5% to 10%.	PDARS alarm printer capture.
2225:49	24-FSL-430 Purge flow alarm cleared.	PDARS alarm printer capture.
2225:49	24-FSLL-430 Draft flow alarm cleared.	PDARS alarm printer capture.
2225:49	24-XS-430 Gas flow system meter malfunction alarm cleared.	PDARS alarm printer capture.
2226:00	CRO was instructed by the SCRO to purge the afterburner. CRO increased FIC-078 CV from 10% to 100%.	EG&G chronology
2226:01	DFS CRO manually closed 24-XV-026.	PDARS alarm printer capture.
2226:50	CRO increased FIC-078 CV from 10% to 100%.	PDARS alarm printer capture.
2226:50	24-FSLL-430 Draft flow alarm activated.	PDARS alarm printer capture.
2226:50	24-FSL-430 Purge flow alarm activated.	PDARS alarm printer capture.
2226:50	24-XS-430 Gas flow system meter malfunction alarm activated.	PDARS alarm printer capture.
	The data indicates that when there was a step change from 10% to 100% on FIC-078. the sudden increase in flow may have generated additional carry-over, causing the gas flow system meter probes to saturate again.	
2226:58	24-PDIC-008 Venturi scrubber differential pressure high alarm activated.	PDARS alarm printer capture.
2227:00	Gas flow system meter still had not recovered. The DFS CRO decreased FIC-078 CV from 100% to 10%.	EG&G chronology
2227:05	16-PIT-065 AFB pressure low alarm cleared.	PDARS alarm printer capture.
2227:07	DFS CRO decreased FIC-078 (AFB #1 combustion air) CV from 100% to 10%.	PDARS alarm printer capture.
2227:10	PIC-018 Kiln pressure low alarm cleared.	PDARS alarm printer capture.
2227:31	16-PIT-065 AFB pressure low alarm activated.	PDARS alarm printer capture.

EXHIBIT A
TIMELINE

Time	Action	Data Source
	All of the analog data for 16-PIT-065 indicates that the AFB pressure remained below –6.00" WC from 2205 to 2229 hours. There may have been an intermittent anomaly that allowed this alarm to momentarily clear. Once this alarm clears, there is a 15-second time delay programmed into the control logic before the alarm can be activated again.	Analog Data from the Control System
2227:36	PIC-018 Kiln pressure low alarm activated.	PDARS alarm printer capture.
2227:39	24-FSL-430 Purge flow alarm cleared.	PDARS alarm printer capture.
2227:41	24-FSLL-430 Draft flow alarm cleared.	PDARS alarm printer capture.
2228:08	24-FSLL-430 Draft flow alarm activated.	PDARS alarm printer capture.
2228:10	24-FSL-430 Purge flow alarm activated.	PDARS alarm printer capture.
2228:19	24-FSLL-430 Draft flow alarm cleared.	PDARS alarm printer capture.
2228:19	24-FSL-430 Purge flow alarm cleared.	PDARS alarm printer capture.
2228:19	24-XS-430 Gas flow system meter malfunction alarm cleared.	PDARS alarm printer capture.
2229:18	CRO increased FIC-078 (AFB #1 combustion air) CV from 10% to 50%.	PDARS alarm printer capture.
2229:21	24-FSLL-430 Draft flow alarm activated.	PDARS alarm printer capture.
2229:21	24-XS-430 Gas flow system meter malfunction alarm activated.	PDARS alarm printer capture.
2229:24	24-FSL-430 Purge flow alarm activated.	PDARS alarm printer capture.
2229:52	16-ZS-078A DFS AFB #1 combustion air flow control valve at high fire.	CONR-112 discrete I/O state change collected by PDARS
2229:52	16-PIT-065 DFS AFB pressure low alarm cleared.	PDARS alarm printer capture
2229:57	16-PIC-018 DFS kiln pressure low alarm cleared.	PDARS alarm printer capture

EXHIBIT A
TIMELINE

Time	Action	Data Source
2230:00	IC technicians indicated that the gas flow system meter had been saturated with liquid and that it would not operate properly until it had time to dry. The SCRO initiated TEMPORARY CHANGE DFS-0112, to jumper out the meter to enable system purge.	EG&G chronology
2230:16	24-FSLL-430 Draft flow alarm cleared.	PDARS alarm printer capture.
2230:16	24-XS-430 Gas flow system meter malfunction alarm cleared.	PDARS alarm printer capture.
2230:16	24-FSL-430 Purge flow alarm cleared.	PDARS alarm printer capture.
2231:18	24-FSLL-430 Draft flow alarm activated.	PDARS alarm printer capture.
2231:18	24-XS-430 Gas flow system meter malfunction alarm activated.	PDARS alarm printer capture.
2231:21	24-FSL-430 Purge flow alarm activated.	PDARS alarm printer capture.
2232:08	24-FSL-430 Purge flow alarm cleared.	PDARS alarm printer capture.
2232:08	24-FSLL-430 Draft flow alarm cleared.	PDARS alarm printer capture.
2232:13	24-FSLL-430 Draft flow alarm activated.	PDARS alarm printer capture.
2232:15	24-FSL-430 Purge flow alarm activated.	PDARS alarm printer capture.
2232:32	24-FSL-430 Purge flow alarm cleared.	PDARS alarm printer capture.
2232:32	24-FSLL-430 Draft flow alarm cleared.	PDARS alarm printer capture.
2232:44	16-TSH-197 Kiln light permissive alarm activated. This is an indication that the AFB temperature has dropped below 1500°F.	PDARS alarm printer capture.
2239:50	24-FSLL-430 Draft flow alarm activated	PDARS alarm printer capture.
2239:50	24-FSL-430 Purge flow alarm activated.	PDARS alarm printer capture.
2239:52	24-FSL-430 Purge flow alarm cleared.	PDARS alarm printer capture.
2239:52	24-FSLL-430 Draft flow alarm cleared.	PDARS alarm printer capture.

Time	Action	Data Source
2240:09	24-FSLL-430 Draft flow alarm activated.	PDARS alarm printer capture.
2240:12	24-FSL-430 Purge flow alarm activated.	PDARS alarm printer capture.
2240:16	24-FSL-430 Purge flow alarm cleared.	PDARS alarm printer capture.
2240:16	24-FSLL-430 Draft flow alarm cleared.	PDARS alarm printer capture.
2240:50	24-FSLL-430 Draft flow alarm activated.	PDARS alarm printer capture.
2240:54	24-FSL-430 Purge flow alarm activated.	PDARS alarm printer capture.
2240:59	24-FSL-430.Purge flow alarm cleared.	PDARS alarm printer capture.
2240:59	24-FSLL-430 Draft flow alarm cleared.	PDARS alarm printer capture.
2241:13	24-FSLL-430 Draft flow alarm activated.	PDARS alarm printer capture.
2241:16	24-FSL-430 Purge flow alarm activated.	PDARS alarm printer capture.
2241:18	24-FSL-430 Purge flow alarm cleared.	PDARS alarm printer capture.
2241:18	24-FSLL-430 Draft flow alarm cleared.	PDARS alarm printer capture.
2241:20	24-FSLL-430 Draft flow alarm activated.	PDARS alarm printer capture.
2241:23	24-FSLL-430 Draft flow alarm cleared.	PDARS alarm printer capture.
2241:25	24-FSLL-430 Draft flow alarm activated.	PDARS alarm printer capture.
2241:28	24-FSL-430 Purge flow alarm activated.	PDARS alarm printer capture.
2243:10	24-FSL-430 Purge flow alarm cleared.	PDARS alarm printer capture.
2243:10	24-FSLL-430 Draft flow alarm cleared.	PDARS alarm printer capture.
2243:22	24-FSLL-430 Draft flow alarm activated.	PDARS alarm printer capture.
2243:22	24-FSL-430 Purge flow alarm activated.	PDARS alarm printer capture.

EXHIBIT A
TIMELINE

Time	Action	Data Source
2243:55	24-XV-026 Manually opened.	PDARS alarm printer capture.
2244:10	16-TSL-197 DFS AFB temperature below relight temperature alarm (afterburner is below 1500°F).	PDARS alarm printer capture.
	Because of the intermittent operation of the gas flow system meter, the DFS CRO was not able to establish DFS system purge. The CON then decided to reduce the amount of air flowing to the system to minimize the temperature loss.	
2248:31	DFS CRO changed FIC-021 (kiln combustion air) CV from 100% to 25%.	PDARS alarm printer capture.
2249:05	DFS CRO changed FIC-079 (AFB #2 combustion air) CV from 100% to 25%.	PDARS alarm printer capture.
2249:13	DFS CRO changed FIC-078 (AFB #1 combustion air) CV from 100% to 25%.	PDARS alarm printer capture.
2249:19	16-ZS-078A DFS AFB #1 combustion air flow control valve off of high fire.	CONR-112 discrete I/O state change collected by PDARS
2249:25	DFS CRO changed PIC-018 CV from 22% to 18%.	PDARS alarm printer capture.
2249:41	DFS CRO changed PIC-018 CV from 18% to 15%.	PDARS alarm printer capture.
	At this point, the CRO had taken manual control of the combustion air flow control valves for all three burners and reduced the CV to 25%. This was done to prevent cooling down the AFB while the CON was troubleshooting the failure of the gas flow system meter. However, due to high system flows, 24-PDIC-008 was operating with a CV of 100% even though it was set to automatic control. 16-PIC-018 was in manual with a CV of 15%. This configuration caused the kiln and AFB pressures to become excessively negative. The AFB pressure indicated –6.0" WC from 2249:31 until 2336:02 hours. The kiln pressure indicated –2.00" WC during the same time frame. The kiln room pressure is normally maintained at –0.85" WC by the ventilation system. During the time that the kiln pressure became very negative, the kiln room pressure also decreased. By 2322 hours the kiln room pressure indicator (76-PDIC-481) was indicating downscale at –2.00" WC and remained at –2.00" WC until about 2338 hours.	

Time	Action	Data Source
	Also during this time, the ECR B ACAMS (ECR312) readings dropped from about 0.32 to 0.01 MPL. This data indicates that when the kiln pressure became excessively negative. agent was drawn into the kiln from ECR B.	
2249:41	DFS AFB pressure low alarm activated (AFB is below –5.00" WC).	PDARS alarm printer capture
2249:48	Kiln pressure low alarm activated (kiln is below –0.80" WC).	PDARS alarm printer capture
2250:13	DFS CRO changed PIC-018 CV from 15% to 10%.	PDARS alarm printer capture.
2250:32	DFS CRO changed PIC-018 CV from 10% to 7%.	PDARS alarm printer capture.
2258:07	24-FSLL-430 Draft flow alarm cleared.	PDARS alarm printer capture.
2258:07	24-FSL-430 Purge flow alarm cleared.	PDARS alarm printer capture.
2258:42	24-XS-430 Gas flow system meter malfunction alarm cleared.	PDARS alarm printer capture.
2259:04	24-XS-430 Gas flow system meter malfunction alarm activated.	PDARS alarm printer capture.
2259:32	24-XS-430 Gas flow system meter malfunction alarm cleared.	PDARS alarm printer capture.
2259:32	The DFS CRO changed the FIC-021 (kiln combustion air) CV from 25% to 5%.	PDARS alarm printer capture.
2259:38	The DFS CRO changed the FIC-078 (AFB #1 combustion air) CV from 25% to 5%.	PDARS alarm printer capture.
2259:58	The DFS CRO changed the FIC-079 (AFB #2 combustion air) CV from 25% to 5%.	PDARS alarm printer capture.
2300:25	DFS CRO changed PIC-018 CV from 7% to 3%.	PDARS alarm printer capture.
2300:31	DFS CRO changed PIC-018 CV from 3% to 5%.	PDARS alarm printer capture.
2300:53	16-PDISH-148 Cyclone differential pressure high alarm.	PDARS alarm printer capture.
2300:31	DFS CRO changed PIC-018 CV from 5% to 8%.	PDARS alarm printer capture.
2301:19	24-XS-430 Gas flow system meter malfunction alarm activated.	PDARS alarm printer capture.
2301:57	24-FSLL-430 Draft flow alarm activated.	PDARS alarm printer capture.

EXHIBIT A
TIMELINE

Time	Action	Data Source
2302:00	24-FSL-430 Purge flow alarm activated.	PDARS alarm printer capture.
2303:39	24-FSL-430 Purge flow alarm cleared.	PDARS alarm printer capture.
2303:39	24-FSLL-430 Draft flow alarm cleared.	PDARS alarm printer capture.
2304:15	24-FSLL-430 Draft flow alarm activated.	PDARS alarm printer capture.
2304:17	24-FSL-430 Purge flow alarm activated.	PDARS alarm printer capture.
2309:40	24-LIC-314 DFS Demister level high alarm.	PDARS alarm printer capture.
2313:45	24-LIC-314 DFS Demister level high-high alarm.	PDARS alarm printer capture.
2318:49	CRO manually stopped the operating clean liquor pump.	PDARS alarm printer capture.
	In an attempt to reduce the amount of liquid being introduced into the gas flow system meter, the CRO stopped the recirculation flow of clean liquor to the scrubber tower packed bed by stopping the clean liquor pump.	Summary of plant status
	The operator had XV-026 open from 2244 to 2257 hours. This was during the time that the AFB and kiln were at excessively negative pressures. From about 2244 to 2259 hours, the packed bed level indicator (24-LIC-031) increased from about 27 to 72 inches. From about 2259 to 2318 hours, the packed bed level indicator (24-LIC-031) decreased from about 72 to 37 inches. At about 2318 hours, the packed bed level indicator (24-LIC-031) suddenly increased to about 77 inches. This is a normal occurrence after the clean liquor pump is stopped. The level in the packed bed increases as the circulation pipes empty out into the reservoir. From 2308 to 2321 the liquid level in the demister sump (24-LIT-314) increased from 10.0 to 17.1 inches.	Analog Data from the Control System

Time	Action	Data Source
	This data indicates that there was some interaction between the high velocity flue gas stream and the fluid being circulated through the packed bed. The data also indicates that much of the fluid being circulated in the packed bed was transported to the demister sump. When the clean liquor drained from the piping into the reservoir, some of the liquid overflowed, as by design, from the packed bed to the scrubber sump. From 2323 to 2327 hours the scrubber sump level indicator increased from about 35 to 40 inches.	
2318:56	24-FALL-030 DFS clean liquor flow low-low alarm activated.	PDARS alarm printer capture.
2319:01	24-PALL-036 DFS clean liquor pressure low-low alarm activated.	PDARS alarm printer capture.
2319:39	24-PDIT-025 Packed bed differential pressure high alarm cleared.	PDARS alarm printer capture.
2319:51	24-FSL-430 Purge flow alarm cleared.	PDARS alarm printer capture.
2319:51	24-FSLL-430 Draft flow alarm cleared.	PDARS alarm printer capture.
2320:03	24-XS-430 Gas flow system meter malfunction alarm cleared.	PDARS alarm printer capture.
2320:12	CRO changed FIC-030 CV from 100% to 0%.	PDARS alarm printer capture.
2321:16	16-AAH-059 AFB exhaust CO high alarm activated.	PDARS alarm printer capture.
2321:33	16-PSHH-204 Kiln pressure high-high alarm cleared. This alarm is generated off of pressure switch that is set at − 0.10" WC. However, this is a RCRA alarm and remains active until a PIN is entered and the alarm is acknowledged by the SCRO.	PDARS alarm printer capture.
2230:00 to 2326:00	IT technicians attempted to troubleshoot the gas flow system meter. DFS PAS CRO emptied excess demister water to maintain PAS Normal.	EG&G chronology
2326:00	PAS 701C at 0.67 ASC.	EG&G chronology
2326:08	PAS 701 C Common stack agent alarm activated.	PDARS alarm printer capture.

Time	Action	Data Source
	The control room supervisors responded to the common stack ACAMS alarm. However, they believed that the DFS was free of agent. They allowed the DFS system recovery actions to continue.	Summary of plant status
2326:10	CRO changed 24-DIC-033 CV from 0% to 100%.	PDARS alarm printer capture.
	The CRO attempted to reduce the level in the scrubber sump from 40 inches back to the normal operating level of 35 inches by bleeding of some of the liquid to the brine surge tanks.	
2327:31	PAS 701 A Common stack agent alarm activated.	PDARS alarm printer capture.
2328:00	PAS 701A at 1.57 ASC.	EG&G chronology
	At this time, the DFS Duct ACAMS (PAS 702) was not in alarm. The CON did not believe that the DFS could be a source of agent. The goal of the DFS CRO was still to purge the DFS system and light at least one AFB burner. At about 2335 hours, the DFS CRO began trying to establish system purge.	
2335:47	16-ZS-078A Kiln combustion air flow control valve open to high fire to establish purge.	CONR-112 discrete I/O state change collected by PDARS
2335:49	ID fan 1st stage tripped (due to high current).	CONR-112 discrete I/O state change collected by PDARS
2335:50	ID fan 2nd stage tripped (due to high current).	CONR-112 discrete I/O state change collected by PDARS
	At the time of the attempt to purge (2335 hours), 24-PDIC-008 was still operating in automatic control with a CV of 100%. 16-PIC-018 was in manual with a CV of 8%. When the system was aligned to purge the flow rate became very high. This excessively high flow rate caused both stages of the ID fan to trip on high current.	
2335:50	Emergency ID fan PAS-BLOW-107 automatically started. This will start when the 1st and 2nd stages are off and DFS AFB > 1000°F.	CONR-112 discrete I/O state change collected by PDARS
2335:50	24-IT-387 2nd stage ID fan current high alarm activated.	PDARS alarm printer capture.
2335:50	24-IT-967 1st stage ID fan current high alarm activated.	PDARS alarm printer capture.

EXHIBIT A
TIMELINE

Time	Action	Data Source
2335:51	DFS AFB combustion air blower DFS-BLOW-102 momentarily tripped on no ID fans running then immediately restarted because PAS-BLOW-107 is running.	CONR-112 discrete I/O state change collected by PDARS
2335:51	DFS Kiln combustion air blower DFS-BLOW-101 tripped on no ID fans running.	CONR-112 discrete I/O state change collected by PDARS
2335:53	Shroud air dampers, HY-016 and HY-017, ramped closed because both stages of the ID fan were off and PAS-BLOW-107 was running.	CONR-112 discrete I/O state change collected by PDARS
2336:00	24-PDIC-008 Venturi differential pressure high alarm cleared.	PDARS alarm printer capture.
2336:00	16-PIT-065 DFS AFB pressure low alarm cleared.	PDARS alarm printer capture.
2336:05	24-PDIC-008 Venturi differential pressure low alarm activated.	PDARS alarm printer capture.
2336:07	24-PDIC-008 Venturi differential pressure low-low alarm activated.	PDARS alarm printer capture.
2336:07	16-PSHH-204 Kiln pressure high-high alarm activated.	PDARS alarm printer capture.
2336:07	16-PIC-018 Kiln pressure low alarm cleared.	PDARS alarm printer capture.
2336:09	24-IT-387 2nd stage ID fan current high alarm cleared.	PDARS alarm printer capture.
2336:09	24-IT-967 1st stage ID fan current high alarm cleared.	PDARS alarm printer capture.
2336:09	2nd stage of the ID fan started. Note that the time stamp is different because the I/O will always lead the alarm printer by a few seconds.	CONR-112 discrete I/O state change collected by PDARS
2336:11	CRO placed the 2nd stage of the ID fan in manual.	PDARS alarm printer capture.
2336:12	16-PIT-283 kiln combustion air pressure low alarm activated.	PDARS alarm printer capture.
2336:13	CRO placed the 1st stage of the ID fan in manual.	PDARS alarm printer capture.
2336:23 to 2336:36	Shroud air dampers, HY-016 and HY-017, ramp open because one stage of the ID fan is running.	CONR-112 discrete I/O state change collected by PDARS
2336:26	PDIC-008 Venturi differential pressure low alarm cleared.	PDARS alarm printer capture.

EXHIBIT A
TIMELINE

Time	Action	Data Source
2336:37	CRO manually shutdown the emergency ID fan.	PDARS alarm printer capture.
2337:19	CRO manually started the 1st stage of the ID fan.	PDARS alarm printer capture.
2337:22	16-ZS-078A DFS AFB #1 combustion air flow control valve no longer at high fire.	CONR-112 discrete I/O state change collected by PDARS
2337:32	2nd stage of the ID fan stopped.	CONR-112 discrete I/O state change collected by PDARS
2337:55	PIC-018 Kiln pressure low alarm activated.	PDARS alarm printer capture.
2338:19	16-PDISH-148 Cyclone pressure differential high alarm cleared.	PDARS alarm printer capture.
2338:39	CRO manually started the 2nd stage of the ID fan.	PDARS alarm printer capture.
2338:55	1st stage of the ID fan stopped.	CONR-112 discrete I/O state change collected by PDARS —
2338:56	DFS CRO changed PIC-018 CV from 8% to 2%.	PDARS alarm printer capture.
2339:00	16-PDISH-148 Cyclone differential pressure high alarm activated.	PDARS alarm printer capture.
2339:02	16-PDIC-008 Venturi differential pressure high alarm activated.	PDARS alarm printer capture.
2339:12	16-PDIC-008 Venturi differential pressure high alarm cleared.	PDARS alarm printer capture.
2339:15	16-PDISH-148 Cyclone differential pressure high alarm cleared.	PDARS alarm printer capture.
2339:20	DFS CRO changed PIC-018 CV from 2% to 4%.	PDARS alarm printer capture.
2339:46	16-PDIC-008 Venturi differential pressure high alarm activated.	PDARS alarm printer capture.
2340:32	24-IT-967 1st ID fan current high alarm cleared.	PDARS alarm printer capture.
2340:46	PAS 702 DFS Duct alarm.	PDARS alarm printer capture.
2341:00	PAS 702 at 1.45 ASC.	EG&G chronology
2342:12	CRO manually stopped DFS AFB combustion air blower. This initiates bottle up of the system as directed by the SCRO.	PDARS alarm printer capture.

Time	Action	Data Source
2342:42	CRO manually stopped 2nd stage of the ID fan.	PDARS alarm printer capture.
2342:42	Emergency ID fan PAS-BLOW-107 automatically started. This will start when the 1st and 2nd stages are off and DFS AFB > 1000°F.	CONR-112 discrete I/O state change collected by PDARS
2342:44 to 2342:47	Shroud air dampers. HY-016 and HY-017, ramped open because one stage of the ID fan is running.	CONR-112 discrete I/O state change collected by PDARS
2343:06	CRO manually shutdown the emergency ID fan.	CONR-112 discrete I/O state change collected by PDARS
2343:22	CRO changed PIC-018 CV from 4% to 0%.	PDARS alarm printer capture.
2343:28	24-FSL-430 Flow low alarm activated.	PDARS alarm printer capture.
2343:30	PIC-018 Kiln pressure low alarm cleared.	PDARS alarm printer capture.
2343:49	PAS 702 Alarm cleared.	PDARS alarm printer capture.
2345:26	16-PSHH-204 Kiln pressure > -0.10" WC comes in momentarily, but not long enough to generate an alarm.	CONR-112 discrete I/O state change collected by PDARS
2347:01	PAS 702 Alarm activated.	PDARS alarm printer capture.
2347:03	PAS 702 Alarm cleared.	PDARS alarm printer capture.
2347:03	16-TSL-197 1400°F relight alarm cleared.	PDARS alarm printer capture.
2347:13	PAS 702 Alarm activated.	PDARS alarm printer capture.
2347:16	PAS 702 Alarm cleared.	PDARS alarm printer capture.
2347:18	PAS 702 Alarm activated.	PDARS alarm printer capture.
2347:20	PAS 701 C Alarm cleared.	PDARS alarm printer capture.

Time	Action	Data Source
2347:25	PAS 702 Alarm cleared.	PDARS alarm printer capture.
2347:37	PAS 702 Alarm activated.	PDARS alarm printer capture.
2347:39	PAS 702 Alarm cleared.	PDARS alarm printer capture.
2347:58	PAS 702 Alarm activated.	PDARS alarm printer capture.
2348:01	PAS 702 Alarm cleared.	PDARS alarm printer capture.
2348:10	24-FSLL-430 Alarm activated.	PDARS alarm printer capture.
2349:49	PAS 702 Alarm activated.	PDARS alarm printer capture.
2351:31	PAS 701 A LOQ Alarm cleared.	PDARS alarm printer capture.
2352:32	PDIC-008 Differential pressure low-low alarm cleared.	PDARS alarm printer capture.
2352:39	24-LIC-314 Demister level high-high alarm cleared.	PDARS alarm printer capture.
2352:49	PAS 702 Alarm cleared.	PDARS alarm printer capture.
2353:06	PAS 701 C LOQ Alarm cleared.	PDARS alarm printer capture.
2353:26	16-TSH-197 AFB temperature kiln light permissive alarm cleared (AFB temperature has increased to above 1500°F because it has been bottled up).	PDARS alarm printer capture.
2353:56	CRO changed DIC-033 CV from 100% to 0%.	PDARS alarm printer capture.
2354:31	16-TIT-042 HDC temperature low alarm cleared.	PDARS alarm printer capture.
2359:33	CRO changed DIC-033 CV from 100% to 0%.	PDARS alarm printer capture.
	The consensus in the CON is that the best course of action is still to try to purge the DFS system and light at least one burner in the afterburner. By this time. TEMPORARY	

EXHIBIT A
TIMELINE

Time	Action	Data Source
	CHANGE, DFS 0112, to install the jumper for 24-FSLL-430 at the AFB BMS had been approved and the jumper had been installed	
0023:00	SCRO directed DFS CRO to purge and re-light the AFB.	EG&G chronology
0022:55	DFS SCRO changed PIC-018 CV from 0% to 2%.	
0023:21	1st stage of the ID fan started.	CONR-112 discrete I/O state change collected by PDARS
0023:27	24-FSLL-430 Draft flow alarm cleared.	CONR-112 discrete I/O state change collected by PDARS
0023:35 to 0023:48	16-ZS-016A / 017A Shroud air open.	CONR-112 discrete I/O state change collected by PDARS
0025:03	24-FSL-430 Cleared. This is required to start the system purge timer.	CONR-112 discrete I/O state change collected by PDARS
0026:12	DFS SCRO changed FIC-078 CV from 0% to 100% to open AFB #1 combustion air to establish purge.	PDARS alarm printer capture.
0026:22	16-ZS-078A AFB #1 combustion air flow control valve was at high fire. This is required to start the system purge timer.	CONR-112 discrete I/O state change collected by PDARS
0027:31	DFS CRO placed PAS-BLOW-107 in automatic.	PDARS alarm printer capture.
0027:31	PAS-BLOW-107 emergency ID fan started. The automatic start logic had been latched during the time that the system was bottled up. The AFB temperature was above 1000°F and neither stage of the ID fan was running. This logic is latched until the DFS CRO places PAS-BLOW-107 in manual and issues a manual stop command.	CONR-112 discrete I/O state change collected by PDARS
0027:32	DFS-BLOW-102 AFB combustion air blower started.	CONR-112 discrete I/O state change collected by PDARS
0027:44	DFS CRO placed PAS-BLOW-107 in manual and stopped the blower.	PDARS alarm printer capture.
0027:43	PAS-BLOW-107 emergency ID fan stopped.	CONR-112 discrete I/O state change collected by PDARS

EXHIBIT A
TIMELINE

Time	Action	Data Source
0027:49	Common Stack PAS 701 B alarm activated.	PDARS alarm printer capture.
	From about 0026 to 0029 hours the quench tower sump level indicator (24-LIC-010) increased from about 41 inches to about 53 inches.	Analog data captured by the control system
0028:42	DFS CRO changed 24-DIC-033 CV from 0% to 100%.	PDARS alarm printer capture.
	The CRO attempted to reduce the level in the Scrubber Sump from 53 inches back to the normal operating level of 35 inches by bleeding of some of the liquid to the Brine Surge Tanks.	
0029:00	PAS 701 B at 0.39 ASC.	EG&G chronology
0029:07	Common Stack PAS 701 C alarm activated.	PDARS alarm printer capture.
0029:36	DFS AFB #2 start signal sent to the BMS.	CONR-112 discrete I/O state change collected by PDARS
0029:40	DFS CRO changed AFB #2 combustion air flow control valve (16-FIC-079) CV from 0% to 10%.	PDARS alarm printer capture.
0029:42	DFS CRO changed AFB #2 fuel gas flow control valve (16-FIC-066) CV from 0% to 10%.	PDARS alarm printer capture.
0029:53	DFS CRO place AFB temperature controller (16-TIC-092) in manual.	PDARS alarm printer capture.
0030:00	PAS 701 C at 0.56 ASC.	EG&G chronology
0030:27	16-ZS-078A AFB #1 combustion air flow control valve came off of high fire. This valve is required to be at low fire to start the burner.	CONR-112 discrete I/O state change collected by PDARS
0030:50	DFS AFB #2 '3-P LOCKOUT' due to 16-PSHH-069, fuel gas pressure high-high. This switch came in as soon as XV-311 and XV-313 (the fuel gas block valves) began to open.	CONR-112 discrete I/O state change collected by PDARS
0032:00	SCRO directed CRO to bottle up the DFS/DFS PAS.	EG&G chronology
0035:11	PAS 702 LOQ Alarm activated.	PDARS alarm printer capture.
0038:08	PAS 701 C LOQ Alarm cleared.	PDARS alarm printer capture.
0039:51	PAS 701 B LOQ Alarm cleared.	PDARS alarm printer capture.
0041:00	PAS 702 at 0.23 ASC.	EG&G chronology
0055:47	PAS 702 LOQ Alarm cleared.	PDARS alarm printer capture.
0434:00	DPE Entry to ECR B to remove strainer bags.	